

## A TAXONOMIC SURVEY OF PTERIDOPHYTIC FLORA OF LALMAI PAHAR AND MAINAMATI OF CUMILLA DISTRICT, BANGLADESH

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### Abstract

This study aims to investigate the pteridophytic flora of the Lalmai Pahar, Mainamati, located at the Cumilla district of Bangladesh. Despite the absence of extensive pteridophyte surveys in this hilly forest, it is known to harbour a diverse range of pteridophyte species. This study presents a survey of the pteridophyte diversity within the specified area, documenting a total of 27 taxa. The voucher specimens have been deposited at the Salar Khan Herbarium, Department of Botany at the University of Dhaka.

### Introduction

The Lalmai-Mainamati hill range is a low hill range located about 8 km west of Cumilla District in Bangladesh. It stretches approximately 17 km from north to south and is 1-2.4 km wide. Lalmai Hill is located between latitudes 23°20'N and 23°30'N and longitudes 91°05'E and 91°10'E<sup>(1,2)</sup>. The Cumilla district is bisected by the hill ranges. The hills have an average elevation of 15 meters, with some peaks reaching up to 45 meters or more<sup>(1,2)</sup>. The northern half of the hill range is known as Mainamati, while the southern half is called Lalmai. The hilltops offer beautiful views characterized by reddish-brown soil. The hills are primarily composed of unconsolidated sands with clay capping. The hills are flat with steep and heavily gullied sides and are mostly unconsolidated sands with clay capping<sup>(1)</sup>. The preliminary survey included areas near Shalbon Bihar, the University of Cumilla, the Bangladesh Academy of Rural Development (BARD), and a few rural areas near Lalmai Pahar. These places are dense hilly forests, with some plantation programs and a few barren sections.

Pteridophytes are an essential plant group to research since many new species are still being discovered worldwide<sup>(3)</sup>. Pteridophytes are a crucial link between non-vascular cryptogams and seed plants in various ecological habitats<sup>(4,5)</sup>. This primitive vascular plant is found worldwide and numbers over 13,600 species<sup>(5)</sup>. With 4500 species, Asia is home to roughly one-third of the world's pteridophyte variety<sup>(4,5)</sup>. Bangladesh has as many as 196 pteridophytic taxa currently available, of which grow either as epiphytes, mesophytes, lithophytes, or hydrophytes<sup>(6)</sup>. Bangladesh has ample scope to use ferns commercially. These plants hold environmental and economic importance, with some species possessing medicinal properties<sup>(6,7,8)</sup>. Conservation measures are crucial for their preservation,

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including creating fern gardens, protected areas, and systematic data collection. District-based collection and documentation, focusing on regions like Lalmai Pahar and Mainamati in Cumilla district, can contribute to creating an up-to-date database for conserving these ancient plants and their cultural and economic value.

The current study was conducted in the Lalmai Mainamati Hill areas, and Pteridophytic specimens were collected from different parts of the area. Photographs were taken in the field with a digital camera (Canon DSLR 600D) (Fig. 1). The collected specimens were appropriately processed in the laboratory to prepare voucher specimens. Beddome<sup>(9)</sup>, Clarke<sup>(10)</sup>, Holttum<sup>(11)</sup>, Dixit<sup>(12)</sup>, Siddiqui *et al.*<sup>(6)</sup> and Smitinand and Larsen<sup>(13)</sup> were followed to study and identify the specimens collected.

The identified specimens were also compared with those deposited at the Bangladesh National Herbarium and Dhaka University Salar Khan Herbarium. The specimens have been preserved at the Department of Botany, Dhaka University. The genera and species under each family have been arranged alphabetically. In Lalamai Hill Forest, 27 taxa of pteridophytes were found belonging to 13 genera of 14 families. Taxonomic enumeration of these pteridophytes is furnished below (Table 1).



Fig. 1. Pteridophytes collected from Lalmai Pahar, Mainamati A. *Adiantum phillipense*; B. *Christella dentate*; C. *Blechnum orientale*; D. *Asplenium longissimum* , E. *Diplazium spectabile*; F. *Lygodium flexuosum*; G. *Selaginella ciliaris*; and H. *Tectaria polymorpha* (Habit).

Table 1. A comprehensive checklist of pteridophytes in Lalmai Pahar, Cumilla District, Bangladesh

Family/ Species	Bangla name	Habitat	Collection Number
<b>Adiantaceae</b>			
<i>Adiantum capillus-veneris</i> L.	Biddyapata	Terrestrial	110
<i>Adiantum phillipense</i> L.	Biddyapata	Terrestrial	115
<b>Marattiopsida</b>			
<i>Angiopteris evecta</i> (Frost) Hoffm.	Raj Dhekia	Terrestrial	117
<b>Aspleniaceae</b>			
<i>Asplenium longissimum</i> Bl., Enum.	Bon Dhekia	Terrestrial	125
<b>Blechnaceae</b>			
<i>Blechnum orientale</i> L.	Dhekia	Terrestrial	118
<b>Thelypteridaceae</b>			
<i>Christella appendiculata</i> (Prestr) Holt.	Bish Dhekia	Terrestrial	137
<i>Christella dentata</i> (Forssk.) Brownsey & Jermy in Brit.	Bish Dhekia	Terrestrial	142
<i>Pronephrium nudatum</i> (Roxb.) Holttum,	Dhekia	Terrestrial	153
<b>Gleicheniaceae</b>			
<i>Dicranopteris linearis</i> (Burm.f.) Underw in Bull.	Lomba dhekia	Terrestrial	127
<b>Athyriaceae</b>			
<i>Diplazium polypodioides</i> Bl.	Dhekia	Terrestrial	129
<i>Diplazium spectabile</i> (Wall. ex Mett.) Ching.	Fern/Dhekia	Terrestrial	133
<b>Polypodiaceae</b>			
<i>Drynaria quercifolia</i> (L.) J. Sm.	Pankhiraj	Epiphytes	167
<i>Microsorium cuspidatum</i> (D. Don).	Not known	Epiphytes	152
<i>Pyrrhosia beddomeana</i> (Gies). Ching.	Not known	Epiphytes	142
<i>Pyrrhosia lanceolatum</i> (L.). Farw.	Dhekia	Epiphytes	171
<b>Lygodiaceae</b>			
<i>Lygodium flexuosum</i> (L.) Sw.	Lata dhekia	Terrestrial	144
<i>Lygodium giganteum</i> Tagawa et Iwatsuki Acta Phytotax.	Lata Dhekia	Terrestrial	138
<i>Lygodium microphyllum</i> (Cav.) R. Br.	Lata Dhekia.	Terrestrial	154
<b>Dennstaedtiaceae</b>			
<i>Microlepia speluncae</i> (L.) Moore.	Fita Dhekia	Terrestrial	150
<b>Pteridaceae</b>			
<i>Pteris ensiformis</i> Burm. F.	Dhekia	Terrestrial	161
<i>Pteris griffithii</i> Hook.	Dhekia	Terrestrial	136
<i>Pteris semipinnata</i> L.	Dhekia	Terrestrial	141
<i>Pteris vittata</i> L.	Dhekia	Terrestrial	155

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<b>Selaginellaceae</b>			
<i>Selaginella ciliaris</i> (Retz.) Spring.	Not known	Terrestrial	128
<i>Selaginella tenera</i> (Hook. et Grev.) Spring.	Not known	Terrestrial	166
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<b>Tectariaceae</b>			
<i>Tectaria chattagramica</i> (Clarke) Ching	Jungli Dhekia	Terrestrial	170
<i>Tectaria polymorpha</i> (Wall. ex Hook.) Copel.	Jungli Dhekia	Terrestrial	109

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